J Anesthesia 23:636, 2009

Taiga Itagaki, Hiromi Katoh, Yushi U. Adachi, Katsumi Suzuki, Yukako Obata, Matsuyuki Doi and Shigehito Sato

Hemothorax resulting from venous tearing by a catherter.

J Anesthesia 23:636, 2009

Intensive Care Unit of University Hospital, Hamamatsu University School of Medicine

1-20-1 Handayama, Higashi-ku, Hamamatsu city, 431-3192, Japan

Address correspondence to: YU Adachi
Intensive Care Unit of University Hospital, Hamamatsu University School of Medicine
1-20-1 Handayama, Higashi-ku, Hamamatsu city, 431-3192, Japan
tel: +81-53-435-2752 fax: +81-53-435-2753
e-mail: yuadachi@hama-med.ac.jp

Running title: Hemothorax Resulting from Venous Tearing

Key words: Hemothorax, catheterization, guidewire,

We read the article by Innami et al. [1] with great interest. Hemothorax is one of the most serious adverse sequelae of internal jugular vein catheterization [2]. We encountered a same iatrogenic complication in a 10-yr girl [3] using CV Regafohsu® SX (Terumo, Tokyo, Japan) equipped with an angle-tip guidewire. Innami et al. [1] concluded that the angle-tip guidewire had directly punctured the right brachiocephalic vein. Although, the mechanism could explain the incident comprehensively, our experimental evaluation [3] demonstrated that the extraluminal penetration of a tender and limp guidewire itself would be scarce and too exceptional. The vessel wall was finally broken by the catheter, not by the wire, and the small hole was macroscopically observed after the removal of the catheter [3, 4]. We speculate that a gentle and thin angle-tip guidewire cannot induce a perforation of vessel wall, but might incidentally migrate into a small branch directly divided from the large brachiocephalic vein, not like as J-tip guidewire. Once the thin straight guidewire was deeply inserted to the distal branch of vessels, the rebound of the guidewire into the large vessel might be restrained during catheterization and the malpositioning of the guidewire will be followed by the venous tearing with a large bore dilator or a catheter. We have no clinical evidence concerning to the shape of guidewire and safety of vein catheterization [5]. The size of puncturing needle using an angle-tip guidewire is usually smaller than those using J-tip guidewire, however, we also recommend not to use an angle-tip guidewire as same as Innami et al. from a view point of the migration.

References

1. Innami Y, Oyaizu T, Ouchi T, Umemura N, Koitabashi T. Life-threatening hemothorax resulting from right brachiocephalic vein perforation during right internal jugular vein catheterization. J Anesth. 2009; 23: 135-8.
2. Jankovic Z, Boon A, Prasad R. Fatal haemothorax following large-bore percutaneous cannulation before liver transplantation. Br J Anaesth. 205; 95: 472-6.
3. Itagaki T, Adachi Y, Suzuki K, Obata Y, Doi M, Sato S. Hemothorax resulting from venous tearing by the catheter during the internal jugular approach. J Clin Anesth (Jpn). 2008; 32: 1423-5.
4. Reina MA, de Leon-Casasola O, Lopez A, De Andres J, Martin S, Mora M. An in vitro study of dural lesions produced by 25-gauge Quincke and Whitacre needles evaluated by scanning electron microscopy. Reg Anesth Pain Med 2000; 26: 393-402.
5. Domino KB, Bowdle TA, Posner KL, Spitellie PH, Lee LA, Cheney FW. Injuries and liability related to central vascular catheters. A closed claims analysis. Anesthesiology. 2004; 100: 1411-8.